

***REMARKS***

The above-identified Application has been carefully reviewed with the Office Action of February 12, 2009, the Examiner's comments, and the art references cited therein in mind. In response thereto, Applicant submits the following arguments in support of patentability. Favorable reconsideration is hereby respectfully requested.

As a preliminary matter, Applicants wish to thank the Examiner for the thorough examination of the present application as evidenced in the non-final Office Action dated February 12, 2009. The present Amendment and Response is responsive to the non-final Office Action dated February 12, 2009. Claims 1-7, 10-22, 24-25 and 27-30 are pending in the application with claims 1-7, 10-12, 14-22, 24-25, 27-29 being amended, and claims 8-9, 23, 26 being canceled. Claims 1-7, 10-12, 14-22, 24-25, 27-29 have been amended as described below in the section of "Claim Objections", "Claim rejections under 35 USC§112", "Allowable Subject Matter" and "Claim rejections under 35 USC§103". No new matter is added. Reconsideration and allowance of the application, as amended, is hereby respectfully requested.

The amendments to the Description are necessary to conform with certain amendments made to the claims. As pointed out by the Examiner, the terms "lost packet" should read "packet loss". This correction stems from the translation of claims from Chinese to English. Similarly, the Description recites "lost ratio" which should have been translated into "loss ratio". In addition, the terms "excess" and "excesses" have been amended to properly read "exceed" and "exceeds". Thus, the amendments are warranted and add no new matter to the present application.

**Claim Objections**

Claims 1, 12 and 29 are objected to because of informalities and appropriate corrections are required. By the present amendment, claims 1, 12 and 29 have been amended. In

particular, the detailed amendments in the claims are as follows:

- Change the term “lost packet” in claims 1 and 2 to “packet loss”;
- Spell out the acronym “EDF” in claims 12 and 29 to “Earliest Deadline First”;
- Change the phrase “a method of EDF algorithm” in claims 12 and 29 to “a method utilizing Earliest Deadline First (EDF) algorithm”.

Additionally, the preamble of claims 2-7, 14-22 and 24-28 is amended to “The method of scheduling packet in a wireless telecommunication system”. The terms “lost ratio” in claims are changed to “loss ratio”.

### Claim Rejections under 35 USC§112

The Office Action rejected claims 1, 3, 4, 10 and 11 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1, 3, 4, 10 and 11 have been amended. No new matter is added. Applicants respectfully submit that the amended claims 1, 3, 4, 10 and 11 comply with the provisions of 35 U.S.C. 112, second paragraph, and accordingly request that the claim rejections under 35 U.S.C. 112 be withdrawn. The detailed amendments and statement are as follows:

Claim 1 has been amended:

- The limitation “the real time lost ratio of packet” in the second indented limitation of claim 1 has been amended to “a real time loss ratio of packet”, thus there is sufficient antecedent basis for this limitation in the claim.

Claims 3 and 4 have been amended:

- The phrase “according to a principal of least” in claim 3 has been amended. By the present amendments, it is clear that priority scheduling is in accordance to a value of  $(W_{\max,m} - W_{i,j})(Jitter_{\max,n} - Jitter_{i,j})l_{i,j}C_{i,j}$ , and priority is given to a user packet

queue having a least value of  $(W_{\max,m} - W_{i,j})(Jitter_{\max,n} - Jitter_{i,j})l_{i,j}C_{i,j}$ . Applicants respectfully submit that the amended claim 3 is definite.

- The phrase “according to a principal of least” in claim 4 has been amended. By the present amendments, it is clear that priority scheduling is in accordance to a value of  $(Jitter_{\max,n} - Jitter_{i,j})l_{i,j}C_{i,j}/W_{i,j}$ , and priority is given to a user packet queue having a least value of  $(W_{\max,m} - W_{i,j})(Jitter_{\max,n} - Jitter_{i,j})l_{i,j}C_{i,j}$ . Applicants respectfully submit that the amended claim 4 is definite.

Claim 10 has been amended:

- The claim language of claim 1 has been included into claim 10.
- The limitation of “dividing the packet data into a packet with time delay jitter and time delay limitation, a packet only with time delay limitation, and a packet without time delay limitation” has been amended to “dividing the packets into packets with time delay jitter and time delay limitation, packets only with time delay limitation, and packets without time delay limitation”. By the present amendment, the limitation will be interpreted as the packets are divided into three classes: packets with time delay jitter and time delay limitation, packets only with time delay limitation, and packets without time delay limitation. Applicants respectfully submit the amended limitation is definite.
- The limitation of data packets having “priority levels from high to low” has been amended to “wherein the packets with time delay jitter and time delay limitation, the packets only with time delay limitation, and the packets without time delay limitation having priority levels from high to low”; the limitation “re-reading new data” has been amended to “reading new data”.

- The limitation “new data” in the fifth indented limitation has been amended to “new data to be transmitted”, thus there is sufficient antecedent basis for this limitation in the claim.
- The limitation “the packet service” in the sixth indented limitation has been amended to “a packet service”, thus there is sufficient antecedent basis for this limitation in the claim.
- Regarding the limitation “a code channel assigned in a scheduling period of a transmission time” in the third indented limitation, Applicants respectfully submit there is sufficient antecedent basis for this limitation in the claim, since when and how a “code channel” is assigned is well known to a person having ordinary skill in the field of Code Division Multiple Access.

Claim 11 has been amended:

- The limitations “a lowest priority level”, “a highest priority level” and “a moderate priority level” have been amended. By the present amendments, there is indication as to how and to which packets, these priority levels are assigned. Thus Applicants respectfully submit the above limitations are definite.

### **Allowable Subject Matter**

Claims 3, 4, 8, 9, 15, 16, 18, 19, 21-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. § 112, 2nd paragraph, set forth in this office action and to include all of the limitations of the base claim and any intervening claims.

Claims 8, 9, 23 and 26 have been canceled. Applicants respectfully submit that claims 3, 4, 15, 16, 18, 19, 21-22, 24-25, 27-28 are in condition for allowance because they depend upon a claim which is in condition for allowance as discussed supra.

**Claim Rejections under 35 USC§103****Claim 1:**

The Office Action rejected claim 1 under 35 U.S.C. 103(a) as being unpatentable over Aznar et al. (US Pub. No. 2001/0007561) and further in view of Kumazawa et al. (US Pub. No. 2002/0114340). Claim 1 is amended. Applicants respectfully submit that the amended claim 1 conforms to the provisions of 35 U.S.C. 103(a).

For a proper rejection of a claim under 35 U.S.C. §103, the cited combination of references must disclose, teach, or suggest all elements/features of the claim at issue. See, e.g., *In re Dow Chemical*, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988) and *In re Keller*, 208 U.S.P.Q.2d 871, 881 (C.C.P.A. 1981) (emphasis added).

Applicants have added “giving priority to scheduling the user packet queues with high loss ratio of packet” after “scheduling the user packet queues according to a volume of the loss ratio of packet,” in the third indented limitation of claim 1. From the last paragraph under Summary of the Invention, it can be seen that no new matter is added.

The amended claim 1 of the present invention defines a method for scheduling packet in a wireless telecommunication system, comprising

dividing user packet queues to be transmitted into user packet queues  
with packet loss and user packet queues without packet loss;  
for the user packet queues with packet loss, if a real time loss ratio of  
packet for the user exceeds a predetermined loss ratio threshold of packet,  
terminating the connection to the user;  
if the real time loss ratio of packet for the user does not exceed the  
predetermined loss ratio threshold of packet, scheduling the user packet queues  
according to a volume of the loss ratio of packet, giving priority to scheduling the

user packet queues with high loss ratio of packet; and

for the user packet queues without packet loss, scheduling according to packet length, channel quality state, time delays and time delay jitter.

With reference to Aznar, it mainly discloses “an enqueueing system for providing VC merged connections in a router of an ATM network”.

Comparing the amended claim 1 of the present invention with Aznar, it can be seen that there are at least the following distinguishing features between the amended claim 1 and Aznar:

a) The amended claim 1 of the present invention comprises the step of “for the user packet queues with packet loss, if a real time loss ratio of packet for the user exceeds a predetermined loss ratio threshold of packet, terminating the connection to the user”. However, Aznar does not disclose this technical feature. Referring to paragraph [0020] of Aznar, there is a recitation of “if the permissible target queue congestion level is not currently exceeded and if the network flow control policy parameters are not violated, the cell is forwarded to an enqueue unit 22. Otherwise the cell is delivered to Xmit forwarding information unit 20 for discarding”. That is to say, in Aznar, cells exceeding the congestion level will be discarded. However, in claim 1 of the present invention, if a real time loss ratio of packet for the user exceeds a predetermined loss ratio threshold of packet, the user packet queue will not be discarded, and the connection to the user will only be terminated. Refer to the last paragraph under Summary of the Invention of the present invention, there is a recitation of “When the loss ratio of packet exceeds the threshold, the connections to the users will be terminated temporarily waiting for the improvement of transmission condition”. It can be seen that in present invention, the connection to the user is terminated temporarily, and the user packet queue will not be discarded, which is quite different from Aznar.

b) The amended claim 1 of the present invention comprises the step of “for the user packet queues without packet loss, scheduling according to packet length, channel quality

state, time delays and time delay jitter". However, Aznar does not disclose this technical feature. Paragraph [0022] of Aznar only discloses "a traffic management scheduler 26 selects the queue from which a cell is to be transmitted in accordance with the queue priority (different queues provide different qualities of service)". However, Aznar does not disclose the traffic management scheduler 26 schedules traffic in accordance with packet lengths, channel quality states, time delays and time delay jitters. Furthermore, referring to the contents from the second paragraph on page 6 to the second paragraph on page 7 of the description of the present invention, it can be seen that packet length only refers to the length of the packets, which is not a quality of service parameter. Additionally, scheduling with respect to channel quality states, time delays and time delay jitters are not well known in the art to be quality of service parameters. Therefore, scheduling with respect to packet lengths, channel quality states, time delays and time delay jitters is not well known in the art to be quality of service parameters. Thus Applicants respectfully submit that Aznar does not teach the technical feature "for the user packet queues without packet loss, scheduling according to packet lengths, channel quality states, time delays and time delay jitters".

c) The amended claim 1 of the present invention comprises the step of "if the real time loss ratio of packet for the user does not exceed the predetermined loss ratio threshold of packet, scheduling the user packet queues according to a volume of the loss ratio of packet, giving priority to scheduling the user packet queues with high loss ratio of packet". However, Aznar does not disclose this technical feature, which the Examiner also admits in the Office Action. Furthermore, Applicants respectfully submit that this technical feature is not well known in the art and is not commonly applied in the communications field for packet scheduling.

In summary, by employing the method defined in the amended claim 1 of the present invention, especially the above distinguishing technical features, "The present invention, through giving priority to scheduling the users with high loss ratio of packet under the condition

of existing a certain range of packet loss, decreases the loss ratio of packet, especially those whose users are in bad transmission condition, thereby ensures the comparative fairness of transmission in unfair transmission conditions. When the loss ratio of packet exceeds the threshold, the connections to the users will be terminated temporarily waiting for the improvement of transmission condition" (please refer to the last paragraph under Summary of the Invention of the present invention). Aznar neither discloses the above distinguishing technical features, nor provides any relative teachings for a person having ordinary skill in the art at the time the invention was made to acquire the technical scheme defined in claim 1 of this invention over Aznar with a combination of the distinguishing technical features mentioned above and further solves the technical problem of this invention.

While referring to Kumazawa, it can be seen that Kumazawa does not teach the above distinguishing technical features as well. In details, Kumazawa does not teach the above distinguishing technical features a) - b). Additionally, regarding the above distinguishing technical feature c), what is disclosed in paragraph [0018] of Kumazawa is "in a non-congestion state, a received packet is transferred directly to a queue having the highest priority among a plurality of queues". It can be seen that in Kumazawa, a queue containing less congestion has a higher priority. That is to say, in Kumazawa, the congestion level is in reverse ratio to the scheduling priority. However, in the amended claim 1 of the present invention, "if the real time loss ratio of packet for the user does not exceed the predetermined loss ratio threshold of packet, scheduling the user packet queues according to a volume of the loss ratio of packet, giving priority to scheduling the user packet queues with high loss ratio of packet". That is to say, the amended claim 1 of the present invention gives priority to scheduling the user packet queues with high loss ratio of packet, so as to ensure the fairness of schedule (please refer to the last paragraph under Summary of the Invention of the present invention). It can be seen that in the amended claim 1 of the present invention, the volume of the loss ratio of packet is in

direct ratio to the scheduling priority, which is actually contrary to the technical scheme disclosed by Kumazawa. Thus Kumazawa does not disclose the above distinguishing technical feature c) as well.

Therefore Kumazawa neither discloses the above distinguishing technical features, nor provides any relative teachings of applying the above distinguishing technical features to solve the technical problem to be solved in this invention.

The above distinguishing technical features are not well known in the art.

Thus it is submitted that it is non-obvious to one of ordinary skill in the art at the time of the invention was made to use the teachings of Kumazawa modified by the disclosure of Aznar.

Therefore, the amended claim 1 is non-obvious at the time the invention was made and is in conformity with the provisions of 35 U.S.C. 103(a).

**Claim 2:**

The Office Action rejected claim 2 under 35 U.S.C. 103(a) as being unpatentable over the combination of Aznar-Kumazawa as applied to claim 1, and further in view of Abu-Amara et al. (US Patent 5, 883, 819). Applicants respectfully disagree and submit that claim 2 conforms to the provisions of 35 U.S.C. 103(a).

Claim 2 depends on claim 1, further defining "wherein said step of dividing user packet queues to be transmitted into the user packet queues with packet loss and the user packet queues without packet loss further includes the steps of:

obtaining related information, required for scheduling, including the channel quality states, the lengths of all packets to be transmitted, maximum delay thresholds for all packets, delay waiting time for all packets, real time loss ratios of packets for all users, real time loss ratio thresholds of packets for all users, time delay jitters for all packets and maximum time delay jitter thresholds

for all packets;

judging whether the real time loss ratio of packet for each of users is more than 0, if yes, categorizing the user packet into the user packet queues with packet loss; if not, categorizing the user packet into the user packet queues without packet loss".

Based on the above analysis, it can be known that Aznar-Kumazawa does not teach the method of scheduling packet in a wireless telecommunication system of claim 1.

Furthermore, regarding the additional technical feature defined in claim 2 of the present invention, it can be seen that Aznar at least does not disclose that said step of dividing user packet queues to be transmitted into the user packet queues with packet loss and the user packet queues without packet loss further includes the steps of "obtaining related information required for scheduling, including the channel quality states, the lengths of all packets to be transmitted, maximum delay thresholds for all packets, delay waiting time for all packets, real time loss ratios of packets for all users, real time loss ratio thresholds of packets for all users, time delay jitters for all packets and maximum time delay jitter thresholds for all packets".

In detail, firstly, Aznar does not disclose that the related information required for scheduling includes "channel quality states". What paragraph [0020] of Aznar discloses is classifying packets in accordance with congestion level. However, "congestion level" disclosed by Aznar is not "channel quality state" defined in the present invention. Referring to the second paragraph on page 6 of the description of the present invention, there is a definition on the channel quality state: "the channel quality state is the reciprocal of the maximum transmission rate possible for the wireless channel, and is referred as  $C_{i,j}$ , wherein, i represents one user index, j represents the scheduling period , and its value is an integer not less than one. The channel quality state  $C_{i,j}$  can also be represented in other ways, for example, represented as the reciprocal of S/N of channel or the path loss of transmission". It can be seen that the

channel quality state defined in the present invention is different from the congestion level disclosed by Aznar.

Secondly, Aznar does not disclose that the related information required for scheduling includes "lengths of all packets to be transmitted". Paragraph [0039] of Aznar only discloses determining if a packet exceeds a packet threshold. That is to say, in Aznar, the length of a packet is used for comparing with a packet threshold, so as to determine if a packet exceeds a packet threshold. However, Aznar does not disclose the related information required for scheduling includes lengths of all packets to be transmitted. While referring to the contents from the second paragraph on page 6 to the second paragraph on page 7 of the description of the present invention, it can be seen that the length of the packet to be transmitted is a parameter in a formula for calculating priority, which is included in the related information required for scheduling. Therefore the length of all packets to be transmitted in claim 2 of the present invention is not used for comparing with a packet threshold.

Thirdly, Aznar does not disclose that the related information required for scheduling includes "maximum delay thresholds for all packets" and "delay waiting time for all packets". Referring to the fourth paragraph on page 6 of the description of the present invention, it can be seen that the maximum delay threshold refers to the maximum waiting time for a packet when waiting for being transmitted, but a packet exceeding the maximum delay threshold does not have to become inactive. Therefore Applicants respectfully submit the time at which a packet has become inactive disclosed by paragraph [0043] of Aznar is not the maximum delay threshold defined in claim 2 of the present invention. Furthermore, paragraph [0043] of Aznar only discloses scanning queues for aging packets which have become inactive, but does not disclose "delay waiting time for all packets".

Additionally, Aznar-Kumazawa is silent on "time delay jitters for all packets and maximum time delay jitter thresholds for all packets", which the Examiner also admits in the

Office Action. Furthermore, Applicants respectfully submit that time delay jitters for all packets and maximum time delay jitter thresholds for all packets are not well known in the art and are not commonly applied in the communications field.

Therefore Aznar-Kumazawa neither discloses the above distinguishing technical features, nor provides any relative teachings for a person having ordinary skill in the art at the time the invention was made to acquire the technical scheme defined in claim 2 of this invention over Aznar-Kumazawa with a combination of the distinguishing technical features mentioned above and further solves the technical problem of this invention.

While referring to Abu-Amara, it can be seen that Abu-Amara does not teach the above distinguishing technical features as well. Although Abu-Amara recites "maximum jitter (delay variation)" and "a specified threshold" (please refer to Col. 1, lines 50-65 and Col. 2, lines 47-52), Abu-Amara does not disclose time delay jitters for all packets or maximum time delay jitter thresholds for all packets. While referring to the second paragraph on page 7 of the description of the present invention, there is a recitation about what time delay jitter and maximum time delay jitter threshold are. Applicants respectfully submit that the "time delay jitters for all packets" and the "maximum time delay jitter thresholds for all packets" defined in the present invention are not "maximum jitter (delay variation)" and "a specified threshold" disclosed by Abu-Amara. Therefore Abu-Amara neither discloses the above distinguishing technical features, nor provides any relative teachings of applying the above distinguishing technical features to solve the technical problem to be solved in this invention.

The above distinguishing technical features are not well known in the art.

Thus it is submitted that it is non-obvious to one of ordinary skill in the art at the time of the invention was made to use the teachings of Abu-Amara modified by the disclosure of Aznar-Kumazawa.

Additionally, claim 2 is a dependent claim of claim 1. As stated above, Aznar-Kumazawa

does not teach the method defined in the amended claim 1, so claim 2 which depends on the claim 1 is also believed to be non-obvious at the time the invention was made and is also in conformity with the provisions of 35 U.S.C. 103(a).

**Claims 5 and 6:**

The Office Action rejected claims 5 and 6 under 35 U.S.C. 103(a) as being unpatentable over the combination of Aznar-Kumazawa as applied to claim 1, and further in view of Jiang (US Pub. No. 2002/0044527). Applicants respectfully disagree and submit that claims 5 and 6 conform to the provisions of 35 U.S.C. 103(a).

Regarding claim 5 of the present invention, claim 5 depends on claim 1, further defining "said channel quality state is a reciprocal of a maximum possible transmission rate in a wireless channel".

Based on the above analysis, it can be known that Aznar-Kumazawa does not teach the method of scheduling packet in a wireless telecommunication system of claim 1.

Furthermore, Aznar-Kumazawa is also silent on the additional technical feature of "wherein said channel quality state is a reciprocal of a maximum possible transmission rate in a wireless channel" defined in claim 5 of the present invention, which the Examiner also admits in the Office Action.

Additionally, Applicants respectfully submit that the above distinguishing technical features defined in claim 5 of the present invention are not well known in the art and are not commonly applied in the communications field.

Therefore Aznar-Kumazawa neither discloses the above distinguishing technical features, nor provides any relative teachings for a person having ordinary skill in the art at the time the invention was made to acquire the technical scheme defined in claim 5 of this invention over Aznar-Kumazawa with a combination of the distinguishing technical features mentioned

above and further solves the technical problem of this invention.

When referring to Jiang, it can be seen that Jiang does not teach the above distinguishing technical features as well. In Jiang, there is a recitation of "Channel efficiency is the actual amount of data delivered to a user divided by the maximum amount of data that can be delivered with the same channel resource" (please refer to paragraph [0010] of Jiang). It can be seen that the channel efficiency disclosed by Jiang is a value without a physical unit. However, in claim 5 of the present invention, "said channel quality state is a reciprocal of a maximum possible transmission rate in a wireless channel". It is known that a maximum possible transmission rate is an amount of data which can be transmitted per unit time, and generally, the physical unit of a maximum possible transmission rate is bps (bit per second). Thus the "channel quality state" defined in claim 5 of the present invention is a value having a physical unit, which is different from the channel efficiency disclosed by Jiang.

Therefore Jiang neither discloses the above distinguishing technical features, nor provides any relative teachings of applying the above distinguishing technical features to solve the technical problem to be solved in this invention.

The above distinguishing technical features are not well known in the art.

Thus it is submitted that it is non-obvious to one of ordinary skill in the art at the time of the invention was made to use the teachings of Jiang modified by the disclosure of Aznar-Kumazawa.

Additionally, claim 5 is a dependent claim of claim 1. As stated above, Aznar-Kumazawa does not teach the method defined in the amended claim 1, so claim 5 which depends on the claim 1 is also non-obvious at the time the invention was made and is also in conformity with the provisions of 35 U.S.C. 103(a).

Regarding claim 6 of the present invention, based on the similar comments made on claim 5, Applicants respectfully submit that claim 6 is also non-obvious at the time the invention

was made and is in condition for allowance.

**Claim 7:**

Claim 7 depends on claim 1. As stated above, the amended claim 1 conforms to the provisions of 35USC§103 (a), so claim 7 which depends on claim 1 is also in conformity with the provisions of 35USC§103 (a).

**Claims 14 and 17:**

Regarding claim 14 of the present invention, based on the similar comments made on claim 5, Applicants respectfully submit that claim 14 is also non-obvious at the time the invention was made and in condition for allowance and is in conformity with the provisions of 35USC§103 (a).

Regarding claim 17 of the present invention, based on the similar comments made on claim 6, Applicants respectfully submit that claim 17 is also non-obvious at the time the invention was made and is in condition for allowance.

**Claim 20:**

Claim 20 depends on claim 2. As stated above, claim 2 conforms to the provisions of 35 U.S.C. 103(a), so claim 20 which depends on claim 2 is also in conformity with the provisions of 35 U.S.C. 103(a).

**Claims 10 and 13:**

The Office Action rejected claims 10 and 13 under 35 U.S.C. 103(a) as being unpatentable over the combination of Aznar-Kumazawa as applied to claim 1, and further in view of Roberts (US Pub. No. 2002/0057699) and further in view of Seo et al. (US Pub. No.

2003/0039217). Applicants respectfully disagree and submit that claims 10 and 13 conform to the provisions of 35 U.S.C. 103(a).

Regarding claim 10 of the present invention, claim 10 defines a method of scheduling packet in wireless telecommunication system, comprising

reading data of packets to be transmitted into buffers of a queue, and dividing the packets into packets with time delay jitter and time delay limitation, packets only with time delay limitation, and packets without time delay limitation, wherein the packets with time delay jitter and time delay limitation, the packets only with time delay limitation, and the packets without time delay limitation having priority levels from high to low;

for the packets with time delay jitter and time delay limitation, scheduling the data of packets according to the priority levels by using a method for scheduling packet comprising

dividing user packet queues to be transmitted into user packet queues with packet loss and user packet queues without packet loss;

for the user packet queues with packet loss, if a real time loss ratio of packet for a user exceeds a predetermined loss ratio threshold of packet, terminating the connection to the user;

if the real time loss ratio of packet for the user does not exceed the predetermined loss ratio threshold of packet, scheduling the user packet queues according to a volume of the loss ratio of packet, giving priority to scheduling the user packet queues with high loss ratio of packet; and

for the user packet queues without packet loss, scheduling according to packet lengths, channel quality states, time delays and time delay jitters;

then, judging whether a code channel assigned in a scheduling period of

a transmission time interval or an overall power used exceeds a predetermined upper limit,

if yes, completing the scheduling period of one transmission time interval for the packet,

if not, reading new data to be transmitted and continuing scheduling a packet service in the scheduling period of the transmission time interval; and

reading new data to be transmitted to start scheduling a packet service in a scheduling period of the following transmission time interval.

Based on the above analysis and comparison, it can be seen that there are at least the following distinguishing features between claim 10 of the present of invention and Aznar:

a) Claim 10 of the present invention comprises the step of "dividing the packets into packets with time delay jitter and time delay limitation, packets only with time delay limitation, and packets without time delay limitation, wherein the packets with time delay jitter and time delay limitation, the packets only with time delay limitation, and the packets without time delay limitation having priority levels from high to low". However, Aznar does not disclose this technical feature.

Referring to Aznar, paragraph [0020] of Aznar only discloses classifying the cell according to its class of service, and paragraph [0032] of Aznar only discloses "an absolute priority from the highest to the lowest priority of the classes of service is preferably utilized". But Aznar neither discloses dividing the packets into the following three classes: packets with time delay jitter and time delay limitation, packets only with time delay limitation, and packets without time delay limitation, nor discloses the specific priority levels of the above three classes of services.

Furthermore, Aznar-Kumazawa is silent on time delay jitter and time delay limitations, which the Examiner also admits in the Office Action. Applicants respectfully submit time delay

jitter and time delay limitations with respect to assigning class of service is not well known in the art and is not commonly applied in the communications field.

Additionally, it can be seen that in claim 10 of the present invention, packet only with time delay limitation has a moderate priority level. That is to say, in claim 10 of the present invention, for a packet having a moderate priority level, there is no jitter requirement, but only time delay requirement. However, the cited references do not teach this technical feature.

b) In claim 10 of the present invention, for the packets with time delay jitter and time delay limitation, the data of packets is scheduled according to the priority levels by using a method for scheduling packet of claim 1. However, as stated above, Aznar-Kumazawa does not teach the method for scheduling packet of claim 1.

Therefore Aznar-Kumazawa neither discloses the above distinguishing technical features, nor provides any relative teachings for a person having ordinary skill in the art at the time the invention was made to acquire the technical scheme defined in claim 10 of this invention over Aznar-Kumazawa with a combination of the distinguishing technical features mentioned above and further solves the technical problem of this invention.

When referring to Roberts, it can be seen that Roberts also does not teach the above distinguishing technical features. Paragraph [0046] of Roberts only recites "delay variation", however, it neither discloses time delay nor discloses time delay jitter or time delay limitation. Therefore Roberts neither discloses the above distinguishing technical features, nor provides any relative teachings of applying the above distinguishing technical features to solve the technical problem to be solved in this invention.

When referring to Seo, it can be seen that Seo does not teach the above distinguishing technical features as well.

The above distinguishing technical features are not well known in the art.

Thus it is submitted that it is non-obvious to one of ordinary skill in the art at the time of

the invention was made to use the teachings of Seo modified by the disclosure of Aznar-Kumazawa-Roberts.

Therefore, claim 10 is non-obvious at the time the invention was made and is in conformity with the provisions of 35 U.S.C. 103(a).

Regarding claim 13 of the present invention, claim 13 depends on claim 10. As stated above, claim 10 conforms to the provisions of 35 U.S.C. 103(a), so claim 13 which depends on claim 10 is also in conformity with the provisions of 35 U.S.C. 103(a).

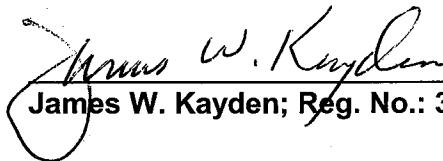
**Claims 11, 12, 29 and 30:**

Claims 11, 12, 29 and 30 depend on claim 10 directly or indirectly. As stated above, claim 10 conforms to the provisions of 35 U.S.C. 103(a), so claims 11, 12, 29 and 30 which depend on claim 10 directly or indirectly are also in conformity with the provisions of 35 U.S.C. 103(a).

### **CONCLUSION**

The Applicants believe they have responded to each matter raised by the Examiner. Allowance of the claims is respectfully solicited. It is believed that the present patent application, after the above amendments and statement of opinions, has overcome all the defects pointed out by the Examiner and is in conformity with the relevant provisions, so it should be granted patent rights. The Applicants request early granting of patent right for this application. If there is still a problem that the Examiner believes is not overcome by the above amendments and statement of opinions, please give the Applicants another chance to make amendments and further clarification or explanation or observation. Should there be any minor informalities remaining, the Examiner is respectfully requested to call the undersigned attorney so that this case may be passed to issue at an early date.

Respectfully submitted,



James W. Kayden  
\_\_\_\_\_  
James W. Kayden; Reg. No.: 31,532

**THOMAS, KAYDEN,  
HORSTEMEYER & RISLEY, L.L.P.**  
Suite 1500  
600 Galleria Parkway N.W.  
Atlanta, Georgia 30339  
(770) 933-9500